

EZ Switch 10/100

16-Port 10BASE-T/100BASE-TX Switch

- 10/100 Mbps auto-negotiation ports
- IEEE 802.3 and 802.3u compliance ensures compatibility with standards-based hubs, switches and cards from any vendor
- Auto-MDI/MDIX on all ports
- Plug and play - nothing to configure
- Perfect for small and medium sized workgroups
- Desktop installation

User Guide

SMC - EZ6516TX





EZ Switch 10/100

User Guide

From SMC's EZ line of low-cost workgroup LAN solutions



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SMC Networks, Inc.
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COMPLIANCES

FCC - Class B

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with instructions, may cause harmful interference to radio communications. However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

EC Conformance Declaration - Class B

SMC contact for these products in Europe is:

SMC Networks Europe,
Edificio Conata II,
Calle Fructuós Gelabert 6-8, 2^a, 4^a,
08970 - Sant Joan Despí,
Barcelona, Spain.

This information technology equipment complies with the requirements of the Council Directive 89/336/EEC on the Approximation of the laws of the Member States relating to Electromagnetic Compatibility and 73/23/EEC for electrical equipment used within certain voltage limits and the Amendment Directive 93/68/EEC. For the evaluation of the compliance with these Directives, the following standards were applied:

- | | |
|-----------|---|
| RFI | * Limit class B according to EN 55022:1998 |
| Emission: | * Limit class A for harmonic current emission according to EN 61000-3-2/1995 |
| | * Limitation of voltage fluctuation and flicker in low-voltage supply system according to EN 61000-3-3/1995 |
| Immunity: | * Product family standard according to EN 55024:1998 |
| | * Electrostatic Discharge according to EN 61000-4-2:1995 (Contact Discharge: ± 4 kV, Air Discharge: ± 8 kV) |
| | * Radio-frequency electromagnetic field according to EN 61000-4-3: 1996 (80 - 1000MHz with 1kHz AM 80% Modulation: 3V/m) |
| | * Electrical fast transient/burst according to EN 61000-4-4:1995(AC/DC power supply: ± 1 kV, Data/Signal lines: ± 0.5 kV) |
| | * Surge immunity test according to EN 61000-4-5:1995(AC/DC Line to Line: ± 1 kV, AC/DC Line to Earth: ± 2 kV) |

COMPLIANCES

- * Immunity to conducted disturbances, Induced by radio-frequency fields: EN 61000-4-6:1996(0.15 - 80MHz with 1kHz AM 80% Modulation: 3V/m)
 - * Power frequency magnetic field immunity test according to EN 61000-4-8:1993(1A/m at frequency 50Hz)
 - * Voltage dips, short interruptions and voltage variations immunity test according to EN 61000-4-11:1994(>95% Reduction @10ms, 30% Reduction @500ms, >95% Reduction @5000ms)
- LVD: * EN60950(A1/1992; A2/1993; A3/1993; A4/1995; A11/1997)

Industry Canada - Class B

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled "Digital Apparatus," ICES-003 of the Department of Communications.

Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe B prescrites dans la norme sur le matériel brouilleur: "Appareils Numériques," NMB-003 édictée par le ministère des Communications.

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INTRODUCTION

This manual describes how to install and use SMC's EZSwitch™ 10/100. It features 16 10/100 Mbps Auto Negotiation switch ports, and provides the flexibility to fit into your working space with network environment. The EZSwitch™ 10/100 can be used to connect with PCs, servers, hubs, bridges, other switches and routers. It can also act as a bridge between 10Mbps and 100Mbps networks segments.

This EZSwitch supports 10Mbps and 100Mbps dedicated bandwidths in each port. The Switch is built with plug & play, auto-negotiation on all ports, store-and-forward transmission scheme, IEEE802.3x flow control and back pressure operation for easy installation and smooth transition from legacy 10Mbps to 100Mbps Ethernet networks. All ports support MDI/MDI-X to facilitate your network expansion.

Description of Hardware

The EZSwitch™ 10/100, SMC-EZ6516TX, are 16-port Fast Ethernet switch featuring 16 10BASE-T/100BASE-TX auto-negotiation ports. These switches provide an ideal bridge between 10 Mbps and 100 Mbps Ethernet networks.

Features and Benefits

- IEEE 802.3 and 802.3u compliance ensures compatibility with standards-based hubs, switches and cards from any vendor
- 16 dual-speed 10/100 Mbps auto-negotiation ports
- Plug and play—nothing to configure
- Built-in wiring crossovers on all ports allow

connections to servers and workstations to be made with straight-through cabling

- “At-a-glance” LEDs for port and system status monitoring
- Jabber lock-up function automatically stops transmission of abnormal frames to prevent network disruption
- Automatic polarity detection and correction
- Desktop installation

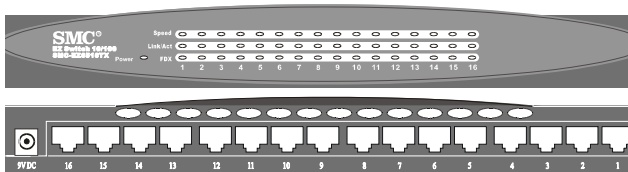
Front Panel LEDs

The front panel of the switch provides status LEDs for “at-a-glance” system monitoring. The following table details the functions of the various indicators:

Port and Switch Status LEDs		
LEDs	Condition	Status
Power	Green	Hub is receiving power.
Link/ Activity	Green	Indicates a valid network connection between the port and the attached device.
	Off	Indicates no network connection established between the port and the attached device.
	Flashing Green	Indicates that the port is transmitting or receiving data.
Speed	Green	Indicates that the port is transmitting or receiving data at 100 Mbps.
	Off	Indicates that the port is transmitting or receiving data at 10 Mbps.

Full Duplex	Green	Indicates that the port is operating in full-duplex mode.
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SMC-EZ6516TX



Rear Panel

These EZ Switch 10/100 models feature 16 10BASE-T/100BASE-TX ports with RJ-45 connectors located on the rear panel of the Switch. Each port contains a built-in wiring crossover (MDI-X) that allows for the use of straight-through twisted-pair cable for connections to devices without built-in crossover ports (i.e., workstations, printers, etc.).

The DC power receptacle is also located on the rear panel of the hub.

INSTALLING THE SWITCH

The EZ Switch 10/100 can be placed on a desktop or shelf and stacked with other devices using the provided 4 rubber foot pads

Equipment Checklist

After unpacking the EZ Switch 10/100, check the contents of the box to be sure you've received the following components:

- EZSwitch 10/100 SMC-EZ6516TX
- Appropriate DC power adapter
- Four rubber foot pads
- SMC Warranty Registration Card
- This User Guide

Selecting a Site

Be sure to follow the site selection guidelines below when choosing a location:

- Select a suitable location for the switch:
 - It should be accessible for installing, cabling and maintaining the switch.
 - The temperature and humidity should be within the ranges listed in the specifications.
 - The status LEDs should be clearly visible.

- There should be adequate space (approximately two inches) on all sides for proper air flow.
- Make sure twisted-pair cable is always routed away from power lines, fluorescent lighting fixtures and other sources of electrical interference such as radios, transmitters, etc.
- Make sure that a properly grounded power outlet is within 8 feet (2.44 meters) of the hub and is powered from an independent circuit breaker. As with any equipment, using a filter or surge suppressor is recommended.

Instructions

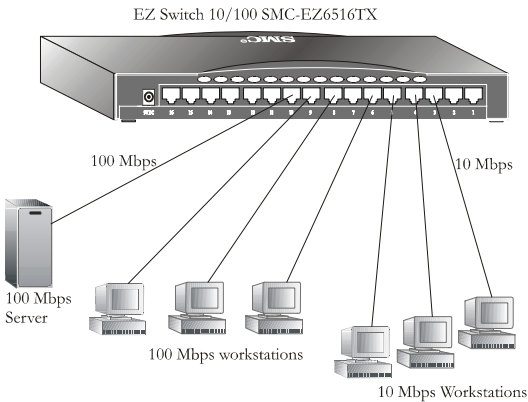
1. **Positioning the Switch:** For desktop or shelf mounting, attach the four adhesive foot pads to the bottom of the switch.
2. **Applying Power:** Plug one end of the power adapter into the socket on the switch's rear panel, and the other end into an appropriate electrical outlet. Check the Power LED to be sure power is on.

Note: It is not necessary to power off the switch before connecting or disconnecting any UTP cables, as these actions *will not* disrupt the operation of other devices attached to the switch.

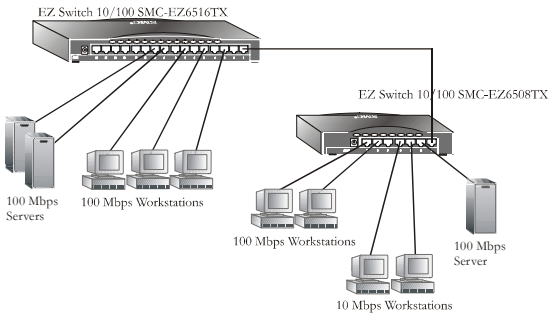
3. **Connecting PCs:** Connect each PC to an RJ-45 port on the switch using a straight-through twisted-pair cable segment, maximum 100 meters (328 ft.). The EZ Switch 10/100 will support up to 5/8/16 PCs.
4. **Cascading Switch and Other Network Devices:** Prepare straight-through Category 5 twisted-pair cable with RJ-45 plugs. Make sure the cable does not exceed 100 meters (328 feet). Connect one end of the cable to the switch's port, and connect the other end of the cable to an MDI/MDI-X RJ-45 port on the other device.

SAMPLE APPLICATIONS

Some typical applications for the SMC-EZ6516TX are illustrated below:



Standalone Switch



Cascading Switches

TROUBLESHOOTING

1. Symptom

Power LED does not light after power on.

Probable Causes

Power outlet or power cord may be defective.

Possible Solutions

- Check for loose connections.
- Check the power outlet by using it for another device.
- Replace the power cord.

2. Symptom

Link LED does not light after connection is made.

Probable Causes

Switch port, network card or cable may be defective.

Possible Solutions

- Check that the Switch and attached device are both powered on.
- Be sure the network cable is connected to both devices.
- Verify that Category 5 cable is used for 100 Mbps connections and that the length of any cable does not exceed 100 meters (328 feet).
- Check the network card and cable connections for defects.
- Replace the defective card or cable if necessary.

CABLE SPECIFICATIONS

Cable Type and Connector

10BASE-T Cable		
Type	Length	Connector
Category 3, 4, 5 UTP	100 m (328 ft)	RJ-45

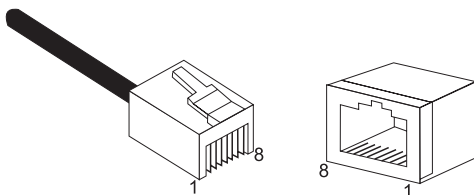
100BASE-TX Cable		
Type	Length	Connector
Category 5 UTP	100 m (328 ft)	RJ-45

RJ-45 Connector Pin Assignments

Caution: **DO-NOT** plug a phone jack connector into any RJ-45 port. Use only twisted-pair cables with RJ-45 connectors that conform with FCC standards.

An Ethernet or Fast Ethernet twisted-pair link segment requires two pairs of wires. Each wire pair is identified by two different colors. For example, one wire might be green and the other, green with a white stripe.

Each wire pair must be attached to the RJ-45 connector in a specific orientation as detailed below.



RJ-45 Pin Assignments Straight-Through Cable	
End 1	End 2
1 (Tx+)	1 (Tx+)
2 (Tx-)	2 (Tx-)
3 (Rx+)	3 (Rx+)
6 (Rx-)	6 (Rx-)

RJ-45 Pin Assignments Crossover Cable	
End 1	End 2
1 (Tx+)	3 (Rx+)
2 (Tx-)	6 (Rx-)
3 (Rx+)	1 (Tx+)
6 (Rx-)	2 (Tx-)

Note: The “+” and “-” signs are used to represent the polarity of the wires that make up each wire pair.

SPECIFICATIONS

EZ Switch 10/100

General

Network Interface

RJ-45: 100 ohm, UTP cable

10BASE-T - Categories 3, 4, or 5

100BASE-TX - Category 5

LEDs

Power - one

Speed - one per port

Link/Activity - one per port

FDX - one per port

Filtering/Forwarding/Learning Rates

Full line rate

Temperature

Operating: 32° to 122°F (0° to 50°C)

Storage: -40° to 158°F (-40° to 70°C)

Humidity, noncondensing

5% to 95%

Standards

IEEE 802.3, 802.3u, ISO/IEC 8802-3

EMC/Safety Compliances

CE Mark

Emissions

FCC Class B, EN 55022 (CISPR 22) Class B

C-Tick - AS/NZS 3548 (1995) Class B

EN 61000-3-2/3

Immunity

IEC 1000-4-2/3/4/6

Safety

CSA/NRTL (C22.2.950, UL 1950)

TÜV/GS (EN60950)

CB (IEC60950)

Warranty

Limited Lifetime

SMC-EZ6516TX

Ports

16 RJ-45 ports

Ports 1-16: Twisted-pair, fixed crossover

MAC Address Table

8K entries

Memory Buffer

4 Mbytes per unit

Size

11.22 x 3.34 x 1.26 in. (28.5 x 8.5 x 3.2 cm)

Weight

1.521 lbs (0.69 kg)

Power Requirements

DC input

9V, 1.5A

Power Consumption

7.2 Watts

Heat Dissipation

24.6 BTU/hr

Maximum Current

0.8A @ 9VDC

SPECIFICATIONS

FOR TECHNICAL SUPPORT, CALL:

From U.S.A. and Canada (24 hours a day, 7 days a week)
(800) SMC-4-YOU; (949) 679-8000; Fax: (949) 679-1481
From Europe (8:00 AM - 5:30 PM UK Time)
44 (0) 118 974 8700; Fax: 44 (0) 118 974 8701

INTERNET

E-mail addresses:

techsupport@smc.com
european.techsupport@smc-europe.com

Driver updates:

<http://www.smc.com/index.cfm?action=tech support drivers downloads>

World Wide Web:

<http://www.smc.com/>
<http://www.smc-europe.com/>

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U.S.A. and Canada:	(800) SMC-4-YOU;	Fax (949) 679-1481
Spain:	34-93-477-4935;	Fax 34-93-477-3774
UK:	44 (0) 118 974 8700;	Fax 44 (0) 118 974 8701
France :	33 (0) 41 38 32 32;	Fax 33 (0) 41 38 01 58
Italy :	39 02 739 12 33;	Fax 39 02 739 14 17
Benelux:	31 33 455 72 88;	Fax 31 33 455 73 30
Central Europe:	49 (0) 89 92861-0;	Fax 49 (0) 89 92861-230
Switzerland:	41 (0) 1 9409971;	Fax 41 (0) 1 9409972
Nordic:	46 (0) 868 70700;	Fax 46 (0) 887 62 62
Northern Europe:	44 (0) 118 974 8700;	Fax 44 (0) 118 974 8701
Eastern Europe:	34 -93-477-4920;	Fax 34 93 477 3774
Sub Saharian Africa:	27-11 314 1133;	Fax 27-11 314 9133
North Africa:	34 93 477 4920;	Fax 34 93 477 3774
Russia:	7 (095) 290 29 96;	Fax 7 (095) 290 29 96
PRC:	86-10-6235-4958;	Fax 86-10-6235-4962
Taiwan:	886-2-2659-9669;	Fax 886-2-2659-9666
Asia Pacific:	(65) 238 6556;	Fax (65) 238 6466
Korea:	82-2-553-0860;	Fax 82-2-553-7202
Japan:	81-45-224-2332;	Fax 81-45-224-2331
Australia:	61-2-8875-7887;	Fax 61-2-8875-7777
India:	91-22-8204437;	Fax 91-22-8204443

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